

March 21, 2006

Mr. Ron Stiver,
Commissioner, Indiana Department of Workforce Development
10 N. Senate Avenue
Indianapolis, IN 46204

Mr. Stiver:

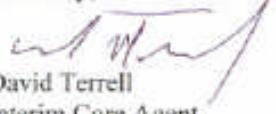
It is with great pleasure that we submit the Root Causes Report for Economic Growth Region 9 on behalf of the Consortium Members.

The Strategic Skills Initiative has provided a methodology to take a fresh look at a new economic growth region of ten counties in Southeast Indiana. Through the involvement of Local Elected Officials, Local Economic Development Officials, and Business Representatives we have been able to accumulate valuable information and input in a relatively short time.

We believe that the data that has been provided by the Department of Workforce Development is rich in many ways and will serve us well in the long term as much as it has in the last few weeks. Frankly, it was a challenge to try to absorb all of it at once. We think with continuous improvement cycles of research we will be able to draw even more meaningful findings and solutions that will enhance our region's economic progress.

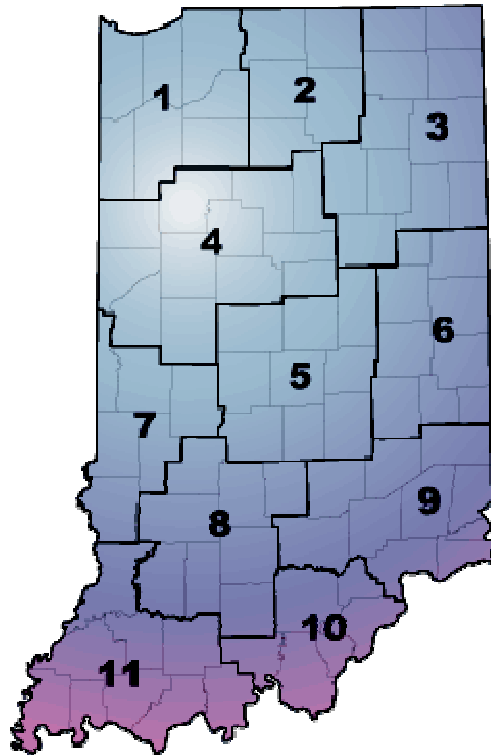
We appreciate the opportunity you have given us to explore these vital educational, workforce and economic development issues for our communities.

Sincerely,



David Terrell
Interim Core Agent
Region 9

Shaping the Future: Developing a Competitive Workforce



Economic Growth Region 9
Strategic Skills Initiative
Root Causes Report
Submitted:
March 21, 2006



INDIANA
WORKFORCE
DEVELOPMENT

Occupation and Skill Shortages Cover Sheet

Economic Growth Region # 9 : 05/21/2006

1. Designated Grantee: Southeast Indiana Regional Planning Commission on behalf of:



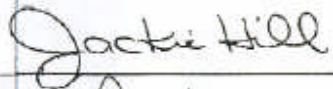
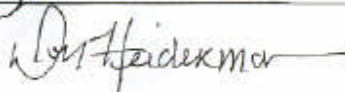


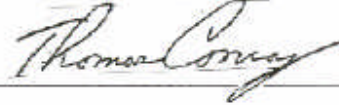
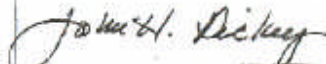
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Name:	Industry:	Title:	Signature:
Please	See	Attached	List

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John Burnett	Education	President	
Ron Timms (Ohio)	Financial Services	President	
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John Dickey (Ripley)	Manufacturing	Manager, Human Relations	

Name/Position	Organization/Address	Phone	Signature
Carol Monroe (Franklin)	Manufacturing	Owner	
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Jim Bronchick	Manufacturing	Vice President of Human Resources	
Neil Buck	Construction	Human Resources Manager	

Occupation and Skill Shortages Report Outline

Economic Growth Region 9

	<u>Page</u>
Cover Letter to Commissioner of the Indiana Department of Workforce Development	1
Cover Page	2
SSI Skills Shortage ID Report with Consortium signatures	3-5
Table of Contents	6
Key Findings and Conclusions from Qualitative Analysis	7-14
Key Findings across All Industry Sectors	7-8
Key Findings by Industry Sectors	9-12
Field of Solutions	13-14
Background and Process	15-24
Economic Growth Region 9's Current Positioning	15
Wages Statewide	15
Issues for Economic Growth for Region 9's Industries	15-17
Emerging Occupations and Higher Skills Sets	17
Background and Process	18-19
Education and Training Capacity and Placement	19-22
Employer Recruitment and Retention	22
Regional Participation	23
Coalition Support	23
Regional Cooperation and Input	23
Methodology	23
Training for Phase II	24
Research	24
Survey Rating Process	24
Appendix A: Breakout of Sub-Sector Root Causes	25-46
Manufacturing	25-27
Health Care	28-30
Education	31-32
Transportation/Warehousing	33-34
Administrative Support	35-37
Construction	38-40
Information Technology	41-44
First Line Supervisor	45-46
Appendix B— State Wages by Industry	47-48
Appendix C— Employer Use of Recruiting Tools	49
Appendix D—Survey questionnaire	50
Appendix E- Quantitative Analysis of Industries	51

Key Findings and Conclusions from Qualitative Analysis

Following the identification of skill gaps in the analysis of secondary data during preparation of the Phase I report, the Region 9 Core Team sought to gain insights on root causes of the gaps through two means of gathering primary data in the region:

- A survey of 200 employers in the key sectors identified in the Phase I research;
- A series of discussion groups with a range of employers in each county in the region convened by economic development staff in each county.

A detailed analysis of sector-by-sector root causes is shown in **Appendix A**. The following grids show the overall conclusions that were reached on root causes across all sectors, followed by key findings and conclusions on a sector-by-sector basis. The conclusions on primary and secondary root causes are based on insights from both the discussion groups and the employer survey, with analysis/implications provided for the insights. This is followed by a “field of solutions” grid that identifies possible actions that emerged from the employer discussions. These potential actions will serve as a bridge for immediately moving into the Phase III work.

Key Findings Across All Sectors

Primary Root Cause	Secondary Root Cause	Analysis/Implications
<i>Education/Training:</i> Rapid increases in technology and subsequent increased demand for skills by the region’s employers have left workers and students ill-prepared to move into the higher-skilled jobs that are being created in the region.	<i>Pipeline of New Workers:</i> The disconnect between employers and educators leaves students and their parents without quality information needed to identify exciting job opportunities in the region and to take actions to build the skills needed to acquire those jobs.	Employers across all sectors are demanding employees who possess basic verbal and technical literacy that are a base for constant learning and flexibility in a rapidly changing workplace. Employers also require a set of “soft skills” that enable workers to effectively interact with customers and other workers, and to be self-motivated to acquire new skills and constantly adapt to new circumstances. In general, students and the general public are confused about future job opportunities. They see constant changes in the message on availability of “good jobs” (for example, the image of “IT jobs” has been tarnished in recent years).

		Employers need to show clear routes to high wages in the region. There are indications that higher-skilled students and workers leave the region because of the relatively low wages. Employers will need to address the issue by “making skills pay” or by dispelling the myth that the region does not pay competitive wages for highly skilled workers.
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Key Findings by Sector

Industry Sector	Primary & Secondary Root Causes	Analysis/Implications
Manufacturing	<p><i>Education/Training (primary):</i> Entry level applicants do not present themselves to employers with the necessary foundation skills for advancement into the emerging high-wage, high-skill jobs in the sector.</p> <p>Workers remain trapped in a competition with other low-skilled workers for a declining number of jobs. Better jobs are being created but current workers cannot qualify for them. Hiring for the higher-skill jobs often comes from outside recruitment, not from internal career ladders.</p> <p><i>Pipeline of New Workers (secondary):</i> Potential workers are not aware of opportunities and career paths in the sector. Students are not made aware of today's manufacturing environment.</p> <p>Educators are often unaware of the emerging changes in the manufacturing workplace and the new high-skill environment. Students are steered away from manufacturing and into other fields.</p>	<p>The manufacturing environment is a rapidly changing one. Robotics and other technology changes are continually reducing the number of low-skill jobs while output continues to increase as a result of productivity gains made possible by the new technologies. New, high-skill jobs are being created rapidly, but current workers do not have the education base to advance into them. Thus, many employers are laying off workers and hiring new ones at the same time.</p> <p>Human resources practices may be partly at fault on several fronts:</p> <ul style="list-style-type: none"> ▪ Hiring workers who do not meet have the requisite skills for advancement; ▪ Lack of career counseling and development plans for incumbent workers; ▪ Failure to inform workers of changing skill requirements in the future workplace. <p>Educators also lack good information on the evolving manufacturing workplace. As a result, they do not promote the high-wage opportunities to students, as such jobs are not considered to be "college track," even though many of the emerging jobs require substantial post-secondary education. Employers in the sector must do a better job of painting clear pictures of the new manufacturing workplace and in presenting advanced manufacturing as a college track career.</p>
Healthcare	<p><i>Wages & Benefits (primary):</i> Outside of the high-end jobs of physicians and top-level administrators, jobs in the sector are generally viewed as low-wage compared to other sectors. Workers often pursue what they perceive to be less-demanding jobs in the other sectors.</p> <p>The wage levels combined with the perceptions about the work environments result in few "career changers" from other</p>	<p>There is much debate about the nature and extent of the "nursing shortage." The reasons for the shortage are multiple, ranging from cost containment by insurance companies to the high demands imposed by the hospital environment on nurses. A key constraint to increasing the pipeline of new trainees is the lack of qualified nurse educators. The relatively low pay for nurse educators is a core issue.</p>

	<p>sectors. Most applicants for jobs in the sector come from workers who already have healthcare jobs.</p> <p>A specific issue is the salary level of MSN faculty members. It is difficult to recruit nurse educators because the pay is higher for persons with these qualifications to remain as nurses.</p> <p><i>Education/Training (secondary):</i> Entry-level workers are not prepared with the baseline skills they need for advancement into higher-wage jobs in the sector.</p> <p>The current workforce needs substantial skills development in technology applications to keep up with rapidly changing technologies for patient care and for managing information. Many of the current workers were attracted to the sector because of a desire for providing human services, not because of a desire to work with technology.</p> <p>Supervisory training is needed for nursing and some of the other sub-sectors where there are large age and cultural gaps between senior staff and new entrants.</p>	<p>Opportunities in the healthcare industry will continue to increase, particularly with demands placed on the system by an aging population. The industry offers a substantial career ladder for entry-level workers with employers often providing educational opportunities for advancement at employer expense. Current and future workers in the industry will need a combination of “high touch” and “high tech” skills in a challenging work environment.</p> <p>Supervisory training will be essential for dealing with age and culture gaps that exist between senior staff and new hires. In nursing, for example, a common comment is “we eat our young” (implying that new hires are often driven away by senior staff). An increasing number of new hires are immigrants, posing additional challenges with culture and language.</p>
Educational Services	<p><i>Brain Drain (primary):</i> Quality jobs in this sector require post-secondary degrees, often advanced degrees. Students who leave the region to attend school elsewhere often do not come back to the area. This leaves lower-qualified applicants in the pool for job openings. This becomes a vicious cycle as salaries are reduced in response to the quality of applicants’ skills. Perceived better quality of life in other regions also serves to draw talent to other regions, often ones with larger metropolitan areas.</p> <p><i>Education/Training (secondary):</i> This is highly related to the primary root cause. Applicants who remain in the region often have lower skill levels. The lack of available talent in the Education and Training Specialist sub-sector also leads to reduced capacity for local employers to train incumbent workers.</p>	<p>Opportunities in this sector continue to expand in both school and employer settings as the other sectors continue to be driven by and increase in knowledge workers.</p> <p>Without the ability to retain local talent, employers will have to rely on bringing in trainers from outside the region to meet needs for upgrading current workers.</p> <p>The sector will continue to be volatile, both in secondary schools and post-secondary ones. Home schooling and charter schools continue to have an impact on the secondary school market, opening new opportunities for new teachers in non-union settings. Private post-secondary schools (such as University of Phoenix) continue to make inroads by tailoring courses and schedules to meet employers’ needs.</p>

Transportation/ Warehousing	<p><i>Human Resources (primary):</i> Qualified workers reject jobs in the sector because of working conditions: overnight travel for truck drivers; late shifts for entry workers in distribution centers/warehousing. Career paths are often lacking in many of the small employers that dominate the sector in the region. Turnover is high in the industry, and finding replacement workers is growing more difficult and time-consuming.</p> <p><i>Wages & Benefits (secondary):</i> As with the healthcare sector, wages are perceived as relatively low compared to other sectors. Potential workers believe they can earn the same or more in other sectors with less-demanding jobs.</p>	<p>The region is well-positioned for continued growth in this sector, as it is geographically situated for one-day travel to a large percentage of the nation's population.</p> <p>Employers recognize the difficulties of the work environment in the Truck Driver sub-sector and are beginning to take actions to solve some of the issues – such as establishing hub systems where local driver can have one-day travel times, returning home in the evenings.</p> <p>Increases in gasoline and other operating costs have also made it difficult to provide wage increases for drivers in a highly-competitive sector.</p>
Administrative Support	<p><i>Education/Training (primary):</i> The two sub-sectors in this sector (Employment Specialist and Grant Specialist) are highly-specialized training areas, and there is a shortage of applicants meeting the needs of employers in the region. There is a lack of incentive to offer the training, and a lack of applicants seeking the training, because of low wage levels brought about by two factors: lower wages of the region in general; lower wages for government jobs where these specialties are mostly used.</p> <p><i>Pipeline of New Workers (secondary):</i> Students are often unaware of the opportunities in these specialties. As with Education Services, students who acquire the specialized education often find or perceive better quality of life and job opportunities in other regions of the country.</p>	<p>The specialized sub-sectors in this sector tend to be areas where employees develop the specialty after employment (mostly in government), rather than acquire the specialized training with the intention of finding employment in the specialty. As a result, successful approaches in meeting the needs for education may require creative approaches by both employers and educational institutions to tie education to the workplace.</p>
Construction	<p><i>Human Resource (primary):</i> Qualified workers leave the industry because of working environment & conditions. Much of the work is hazardous, outdoors, and physically demanding. The workforce is segmented into higher-skilled, higher-paid unionized workers and lower-skilled, non-union workers. Career paths often do not exist between the two segments. On the union side there are clear career ladders and training expectations. On the non-union side, there is less structure.</p>	<p>While technological advances have been made in the sector – new materials, new techniques in working with materials, pre-assembled sub-components, and others – it is still highly labor-intensive. With the exception of “vocational education” programs, much of the training is on-the-job under the supervision of a skilled supervisor.</p> <p>High achieving high school students are typically not encouraged to pursue jobs in the sector and are not informed of</p>

		careers in the sector.
	<i>(No secondary causes. Concurrence on the primary one.)</i>	
Information Technology	<p><i>Education/Training (primary):</i> Workers and applicants do not have the technical skills they need for IT jobs. Applicants who do possess the technical skills are often lacking in leadership skills needed for advancement in the industry.</p> <p><i>Brain Drain (secondary):</i> Once students leave the area to go to school, they often don't return to the region. Students do not see that there are opportunities in the region.</p>	<p>Information Technology (IT) can be viewed as a sector, but IT jobs also cut across all sectors as new applications are introduced to increase productivity. As a result, it is difficult for educators to keep up with all of the applications and with the pace of change. Employers note that education funding from the state does not allow for the rapid changes needed to keep up with changes in the sector.</p> <p>The primary need is for students who possess a solid technical base and an ability to learn the employer's specific applications. Employers also cite a need for leadership skills to be taught along with the technical skills, as these skills will be needed in the workplace for advancement.</p> <p>As with other sectors, IT employers need to do a better job of communicating the opportunities and skill requirements to educators and to the general public. This is particularly critical following what the public perceives as a recent "IT bust." The public is now less certain that IT jobs offer a stable employment future.</p>
First Line Supervisors	<p><i>Education/Training (primary):</i> Supervisors across multiple occupations have often advanced through the ranks into supervisory positions without acquiring the sufficient skills in leadership and management of the workforces that report to them.</p> <p><i>Wages & Benefits (secondary):</i> Wages and benefits for supervisors in the region are considered to be low in comparison to other regions and to other job opportunities in this region. Qualified supervisors can often make higher wages in the non-supervisory positions without having to take on supervisory responsibilities and difficulties.</p>	<p>All industries consistently reported a skill shortage in First Line Supervisors. While responsibilities and sector-specific knowledge requirements differ by industry, general deficiencies in leadership, management and human relations skills were reported across the board. Many supervisors have advanced through the ranks without formal training in the skills needed for management responsibilities. This has also served to suppress wages for the supervisor position. Deficiencies in supervisory talent are critical as they also affect the companies' ability to develop the rest of the workforce.</p>

Field of Solutions: The Bridge to Phase III

During the county-based discussion sessions with local employers, a starting set of potential solutions was built. This will serve as a departure point for working with key sectors selected for Phase III, where the ultimate outcome will be a small set of defined actions with assigned responsibility for implementation in 2-3 industry sectors.

Type of Root Cause	Potential Solutions
Employer HR Policies & Practices	<ul style="list-style-type: none"> • In-plant leadership development programs • Provide remediation training to existing workforce at the company sites • Have ongoing skill development plans for all company employees – identify the ones with desire and ability for advancement and seek/provide training funds for advancement • Develop clear career ladder opportunities for employees tied to training and development • Increase the availability of site-based training at the companies through partnerships with area schools – develop “corporate university” structures at single companies or with clusters of related companies • Expand the use of Work Keys – value will come only after critical mass of employers endorse and use the tool • Provide supervisor training with college credit for completion of series of short-term courses • Develop more extensive internships for “blue collar” jobs that require less than 4-year degrees
Education & Training: Capacity, Completion, Placement	<ul style="list-style-type: none"> • Provide college credit courses at company sites • Develop financial incentives to attract more nursing educators, thus providing more training capacity • Inject more “soft skills” training into curricula at all levels • Increase funding and capacity of community college – possibly through employer-sponsored training aimed at specific skill gaps • Engage the employer community in creating clear standards for “workplace literacy” specific to each industry in today’s environment • Create “employer panels” for key employer sectors – charge the panel with identifying training and education gaps and with working with educators to design solutions
“Pipeline” & Career Awareness	<ul style="list-style-type: none"> • Develop “Career Day” programs in schools that show wide range of local opportunities across all employer sectors • Provide 2-week course for school counselors to expose them to a wide variety of real-world employer environments • Develop internship programs aimed at children of employees in existing companies • Develop community awareness programs that emphasize the importance of education and the connection between levels of education and levels of compensation • Create joint economic development/workforce development regional plan – publicize the goals and outcomes for creation of quality jobs and the skills needed to acquire them

<p>“Brain Drain” & Leakages</p>	<ul style="list-style-type: none"> • Develop wider range of internships, co-op education and other means of connecting students with employers so that employers can screen and select candidates before they escape the schools • Develop better tracking of students who leave the area – keep in contact with information on job opportunities that might attract them back
<p>Wages & Benefits</p>	<ul style="list-style-type: none"> • Tighten the rules for receiving Unemployment Compensation – it is easier for workers to receive government funds than to take lower-wage jobs • Keep wage/salary information up-to-date so that employers will have good information on their wage levels compared to other employers who are competing with them for talent attraction

Background and Process

Economic Growth Region 9's Current Positioning

Economic Growth Region 9 is comprised of ten counties—Bartholomew, Dearborn, Decatur, Franklin, Jackson, Jefferson, Jennings, Ohio, Ripley, and Switzerland counties and has a population (2004) of 314,768, which represents 5.0% of the state's total.

Economic Growth Region 9 has three main employment patterns: 1) Manufacturing; 2) Arts, Entertainment, and Recreation; and 3) Waste Management and Remediation Services. As a region, Manufacturing represents 28.5% of total employment, Health Care and Social Services represents 10.7 % and Retail Trade represents 10.6%. Per capita income in the region is slightly lower than that of the State of Indiana. The region's per capita income is \$26,852 compared to the state's average of \$28, 838.

Wages Statewide

Across all industries, Economic Growth Region 9 in average wages for the state rates ninth out of eleven. Economic Growth Region 9 has no rating of number one in any industry for the highest wages paid and is also below the national average in every industry. This shows that the region is still behind in wages in every aspect. For a list of every industry by region for wages, please view **Appendix B**.

One consideration that should be kept in mind is that people do factor in where wages are better and that it would be possible for a person to live in Economic Growth Region 9 and commute to a Region that pays better. For example, Economic Growth Region 5 is the best overall in the state for wages could be used as a location where people would commute to.

Issues for Economic Growth Region 9's Industries

From 1994-2004 there was a notable change in Economic Growth Region 9's economy: there was a major shift in manufacturing. Twelve of eighteen manufacturing sub-sectors lost jobs. However, seven out of the twelve industries that lost jobs were matching national trends for job loss. Significant job gains were made in Transportation Equipment (Automotive Parts Suppliers) and miscellaneous manufacturing which also matched the national job growth. The Manufacturing Industry historically has been heavily relied upon for job growth and stability in the region. However, due to the rapid transfer of information, the industries are able to adapt and change to the demand of the market faster. Therefore, job stability in an unstable market is not able to be predicted.

The growth rate in the 65+ age group is expected to be greater than the growth rate of the 18-64 age groups. With a 1% growth rate predicted for the 18-64 age groups, this will put the burden of care on a much smaller workforce. As this population retires, there will also be a push in demand for various health care fields to care for an aging population.

The question then becomes, “How do you care for an aging population with a smaller workforce?”

Though educational services showed no specific skill gaps across current occupations, we have identified that there is a growing need for special education, math and science educators. There is also a growing need for education and training specialists serving employers of the region. We cannot currently quantify the future need for these specialties; however, math and science teachers are critical for building the literacy base of the future workforce, and education and training specialists are key to upgrading incumbent workers.

As the US economy switches from product to service related, there will be demand for Retail Trade, Accommodation/Food Services, Arts, Entertainment& Recreation, and Administrative Support to be more efficient and to provide better services. With this, there will be a need for the workers themselves to become better skilled at things like time management, communication and efficiently using their resources. Changes in technology are making educated and skilled laborers more valuable and unskilled laborers less. Government policies will need more stress on promoting and upgrading access to a range of training for new skills¹. While this is an industry which will continue to grow because it is one that provides services to the end-user, it is one where the wages are low and the turn-over is high. The question then becomes, “How much do you want to put in to a workforce that is constantly changing?”

Transportation/Warehousing is an industry that is rapidly developing. It has been discovered that logistics and well developed supply chains enhance the efficiency of companies. Occupations within this industry that are seen as key to the industry and could not function without each one communicating properly. Since Economic Growth Region 9 has two main interstates running through it, this is seen as a potential growth industry. However, there is still high turnover in this industry. Some occupations see as much as a 90% turnover. The main question would then be: “What factor(s) are causing the turnover to be so high and what can be done to reduce it?”

Even with a knowledge-based economy, there are still traditional skill sets that will continue to be in demand. The Construction Industry is an industry where it is not the education of the worker, but the physical skills that are needed. Workers need to be adept in their specialized field of selected skills and be able to meet the physical demands of the job. Because it is physically demanding and due to the inherent risks, it can be difficult to attract candidates into this career field.

Through collaborative networks and the diffusion of technology, companies will maximize the benefits of technology for productivity. Information Technology is a separate industry and also a sub-industry in every industry. Information technology is the industry that has the most emerging occupations that require levels of education as well

¹ <http://members.shaw.ca/competitivenessofnations/Anno%20OECD.htm>

as specific skills related to occupational specialties. For the region, the question is: “How do you attract and retain the people that have these skills into the region?”

Emerging Occupations and Higher Skills Sets

Manufacturing employment is declining, but productivity is increasing. Most of this is attributed to the increase in technology. This will lead to a shift from “occupational groupings to skill groupings based on competence².” According Robert Reich³, there are two things that are happening within the US economy. First of all, mass production is dissipating and leading into custom tailoring of products. Many large companies have research, design, and production facilities spread freely across borders which are separated into smaller, separate functioning facilities. Decisions to locate facilities now depend on where a company can find the most talented and experienced workers for the lowest price.

Secondly, Reich divides jobs into three broad categories for assessing their contribution to new the global economy. These are "symbolic- analytic" services, routine production services, and "in-person" services. The routine workers will be exposed to competition by low-wage countries and will tend to shift through many jobs during their work life. The in-person service will have protection from international competition because it requires that they be close to the consumer. Symbolic Analysts will be a new class of workers that come with the knowledge based economy. They will be the best educated and will have the better jobs.

With this shift of industries and a drive for a more competent workforce, comes a strong drive for each person to gain more skills to survive competition from a global market. To ensure that the industries in the region survive the global drive, there is an apparent need to upgrade skills along the way.

Throughout each industry, there was one common shortage: first-line supervisors. However, the shortage was not in finding people to fill the positions; rather, it was finding people that had the managerial and leadership skills to fill the positions. Most companies put people who had the technical skills in the position knowing that they might not be the best person to fill the slot. Most felt that the policy was to promote until the person reached a level of incompetence.

Background on Process

The Root Causes Report is the second stage of a three-stage process in Region 9 that is intended to lead to specific action strategies to address key skill shortages in the region. The initial Occupation and Skill Shortages Report served to identify current and emerging skill gaps within a three-tier analysis structure of:

² <http://www.edfac.unimelb.edu.au/EPM/CPET/documents/changingwork.pdf>

³ THE WORK OF NATIONS

Tier I – demand and supply are well-documented

Tier II – demand is accurately estimated but supply information is lacking

Tier III – emerging occupations that are deemed to be key to the future economy of the region, but where neither demand nor supply can be accurately assessed.

The initial analysis across the three tiers yielded the following key focus occupations:

Tier I

- Registered nurses
- Licensed practical nurses

Tier II

- First line supervisors (cutting across all industries)
- Education
 - Special Education
 - Math and Science Teachers
- Construction trades
 - Electricians
 - Carpenters
- Transportation & Warehousing
 - Truck mechanics
 - Truck drivers

Tier III

- Manufacturing
 - CNC machining
 - Injection molding engineers
 - Mechanical engineers
 - Nano manufacturing specialists
 - Microbeded systems specialists
- Healthcare
 - Specialized health/diagnostic technicians
 - Ophthalmologists
 - Healthcare administrators
 - Geriatric nurses
- Education
 - Education and training specialists
- Information Technology
 - Computer aided drafters
 - Software engineers
 - Computer repair
 - Webmasters
 - Computer security
 - GIS technicians
 - Information architects
 - Fiber optics technicians
- Administrative Support Occupations
 - Employment specialists

- Grants specialists

While the list of initial occupations within key industries is lengthy, it was decided that a survey instrument would be used to obtain quantified inputs on each of the specific occupations and to aggregate the input for the key industries. The purpose of the input was:

- To identify specific occupations where critical success paths to solving skill gaps are clear (making them candidates for early “wins”);
- To identify needs and possible solution strategies that cut across multiple industries and occupations (making them candidates for high-impact actions); and
- To begin to build a list of possible solutions that could be tested for degree of impact, political feasibility, and cost effectiveness, which would start to create a departure point for analysis needed to define action strategies in Phase III of the process.

Education and Training Capacity

Vocational Schools

Three vocational schools cover the student/adult populations in the ten counties of Region 9:

Columbus Area Career Connection (C4)	Bartholomew, Jackson, Decatur
Southeastern Career Center	Dearborn, Jefferson, Jennings, Ohio, Ripley, and Switzerland
Whitewater Technical Center	Franklin

Programs are offered in the following career clusters: AgriScience and Business, Business Management and Finance, Communications, Computer Technology, Construction Engineering Technology, Engineering Manufacturing Technology, Health Careers, Human Services, Protective Services, and Transportation.

Competencies are assessed and organized in student portfolios. Resume writing is offered to support graduates in their job seeking efforts.

Service provided includes:

Guidance and career counseling

Career Pathways (Class planning from 9th grade through Post-Secondary)

Adult Basic Education

Work Keys certification

Job Placement services

Adult Basic Education

Adult evening classes a variety of subjects

Vocational School enrollment is increasing 8-10%/ year and is becoming known not only for preparing students for work, but future post-secondary as well. Dual credit opportunities are increasing throughout Region 9. Drop out rates from Vocational Educational Programs is minimal. Many of the occupation shortages identified in Phase One report of the Strategic Skills Initiative are being served well by the Vocational School System. Some of them are: Health Care, Construction, Carpenters, Electricians, Mechanics, CNC Operators, and Computer Technology. Advisory Boards are in place for all major career clusters to advise on programs and capital purchases of equipment and technology.

Learning Centers

Community learning centers have been established in several Region 9 cities: Columbus, Seymour, Greensburg, North Vernon, and Batesville. Resources include: career information, computer technology, over 1400 distance learning classes providing college credit or certification as well as adult education classes for general skill building and interests. General Education Diploma classes are offered in many locations.

Indiana State University brokers many classes through College Cooperative Southeast. All state supported Indiana Colleges and Universities participate in CCS, which is primarily a long distance education alternative. Video streaming, satellite, Internet and television are the most frequently used media.

Awareness is growing that life long learning is a reality of staying current with technology and finding one's place in the competitive job environment. Some of the barriers to continued growth in Learning Centers include:

- ⇒ Marketing the services provided.
- ⇒ Increasing awareness of life long learning as a necessity in the knowledge based economy.
- ⇒ Supplying instructors to teach distance learning classes.

The most popular courses include: nursing, early childhood education, and business computer training. There is significant capacity in the Learning Centers in Region 9 to grow. There is evidence through the 2005 Job Vacancy Survey that Internet and long distance education alternatives are being utilized more than a similar study revealed in 1999.

Post-Secondary Schools

As a state-wide system, Ivy Tech has experienced tremendous growth, increasing its enrollment in each of the last 11 years, and by a total of 84 percent from 1994-2004. Ivy Tech is the state's second largest public post-secondary institution with more than 73,000 students. Growth at Ivy Tech in Columbus, Madison, and Lawrenceburg shows similar increases. One of the challenges for Ivy Tech is to improve the infrastructure, including technology and facilities, to match the corresponding growth rates.

Ivy Tech and regional four-year degree institutions-IUPUC, Purdue School of Technology- have increased the number of transfer agreements making the total education process less costly to students and providing a clear line of sight to their educational paths. There are currently 18 academic programs available at IUPUC.

Ivy Tech's has grown and expanded throughout Region 9. The most notable challenge and opportunity is to increase the visibility and presence of four year public education. Expansion of IUPU-Columbus programs and development of transfer agreements will greatly help increase the capacity of post secondary education in the area.

In addition to the public post-secondary institutions, Indiana Wesleyan and Hanover College also have a strong presence in Region 9.

Indiana Wesleyan's target student audience are typically already in the workforce with at least two years experience. Classes are provided at evening and on weekends to accommodate work schedules. Associate, Bachelor, and Master Degree opportunities are offered. The more popular degree areas include: Business Administration, Management, Nursing, and Education. Indiana Wesleyan has a presence in Columbus, Seymour, Batesville, and Lawrenceburg.

Nursing programs in Seymour, Batesville, and Lawrenceburg are helping our Region's Registered Nurse supply. Transferring credits and providing elective alternatives is a challenge for Indiana Wesleyan students.

Hanover College is a private coeducational liberal arts college located near Madison and currently has over a thousand students. Currently, it provides more than 30 academic programs.

More than sixty percent of graduates go on to a graduate or professional program. Career services are offered as part of an on-campus program and an extensive alumni network.

Work One Centers

Region 9 has three full service Work One Centers in Columbus, Lawrenceburg, and Madison. In addition, there are three Express Centers in Greensburg, North Vernon, and Seymour.

Products and services include: employment, counseling, career resource information, state job match, Trade Adjustment Assistance, Trade Readjustment Assistance, and labor market information. Work Keys testing is also available for job profile related openings. Workforce Investment Act funding is also provided for qualified participants.

Unemployment insurance claims are filed through Work One Centers and represent a significant portion of resources utilized. A computerized on-line claim filing system is providing efficiency gains.

Survey data and focus group feedback completed in 2002 indicate that Work One services are not understood and/or utilized. The 2005 Job Vacancy Survey report also confirms that only 5% of job openings are filled through this delivery system.

The labor information system provided by the Department of Workforce Development is a strength that could be utilized more in the future to assist employers, job seekers, and policy makers in the Region.

Workforce and Economic Development

Ivy Tech's Workforce and Economic Development Program works closely with local business representatives to provide skills training in critical areas. Some of the key occupations related to shortages identified in Phase One of Strategic Skills Initiative include: first line supervisors, electricians, carpenters, and construction. Workforce and Economic Development partners with trade unions to supply information and career direction to students/workers interested in those occupations.

Similar to Community Learning Centers, there is significant capacity to grow. The challenges are also similar—the need to market products and services more and raise awareness of the importance of life long learning to their students/workers.

Employer Recruitment and Retention

In order to assess root causes in Phase Two of SSI the recommended methodology of looking first at recruiting sources for critical occupations was followed. A Job Vacancy Report was developed by ERISS in 2005 that sampled approximately 30% of Indiana businesses on a variety of dimensions related to compensation, benefits, staffing practices, and other Human Resource issues. The table in **Appendix C** shows the type and percent usage of recruiting sources.

The sources show that industries that promote from within have an available workforce that would be qualified to work in more advanced positions. Because most of the industries that are in shortage in the region hire by word of mouth, it shows that the region has difficulty finding qualified workers to fill available positions.

Regional Participation in Root Cause Phase II Analysis

Coalition Support

The Root Causes of the Occupational and Skill Shortage Report with the Economic Growth Region 9 consortium. The consortium will become the new 14-member Regional Workforce Board (RWB). Their participation throughout this process will provide them the background to transition more effectively into their new roles as they plan for full

implementation July 1, 2006. They support the findings and will provide leadership for the Phase III process as an integral part of the overall strategy development the upcoming program year.

Regional Cooperation and Input

Focus groups were convened by the local economic development officials of each county and consisted of business representatives from the counties where the meetings were held. Over 40 business representatives participated in the focus groups

- There were six focus groups meetings that covered all ten counties in Economic Growth Region 9
- An additional regional health care meeting was held

In addition to the group discussions, a survey was sent out to business representatives from each of the county covering each industry sector. A total of 200 responses were obtained and tabulated (see **Appendices D and E**).

In addition, secondary research was gathered and used to supplement the primary research.

Methodology

Six areas for root causes were to be studied for each industry and the occupations in that industry that were mentioned in the Phase One report The six root causes are Employer HR Policies and Practices; Education and Training: Capacity, Completion, Placement; the “Pipeline” and Career Awareness; Leakage/ “Brain Drain”; Wages and Benefits; and Skills Gap. These root causes were broken down into sub-categories as shown on the survey form: Human Resources(17 sub-categories), Education and Training(6 sub-categories), Wages and Benefits(4 sub-categories), Pipeline(7 sub-categories), Brain Drain(2 sub-categories), and Skills Gap(9 sub-categories). Each sub-category⁴ was rated to get quantifiable data for each occupation by Root Cause. Each Root Cause then has rating by occupation to show how much of an impact it has on the industry as a whole.

Training for Phase Two

During the initial part of Phase Two, the team members participated in web-based training that was provided by Workforce Development Associates. These training sessions help to clearly define the five types of root causes to be used in our analysis:

1. Employer HR Policies and Practices
2. Education and Training: Capacity, Completion, Placement
3. The “Pipeline” and Career Awareness
4. Leakage/ “Brain Drain”

⁴ See Appendix D for the questionnaire

5. Wages and Benefits

Research

Phase two analyses of root causes for occupations and skills shortages in Economic Growth Region 9 were those that were annotated in the Phase One Report for Economic Growth Region 9. Identification of root causes for both skills and occupations shortages were conducted on a regional basis. Both primary and secondary research was used.

There were three main types of primary research used. The first source was through surveys that were specific to each industry and occupations. Business partners in the region participated in this survey. The second source was through focus group meetings with business partners in the region. The third source was through personal interviews with specific business representatives.

Secondary resources sources that were used were on the regional, state, national and international level. These sources come from many different places. They came from books, periodicals, magazines, the internet and through other literature provided by people through out the region. These sources are cited in the Works Cited page.

By using these sources, there was careful work to ensure that all guidelines set forth by the Indiana Department of Workforce Labor were following. By following these guidelines, the Economic Growth Region 9 Phase Two Report has all required information in it.

Survey Rating Process

In addition to the five root causes described in the “Training for Phase Two” section, there was an additional cause added. The root cause that was added was the skills gap. A questionnaire was developed where respondents were asked to rate the key occupations in their own industries. For each occupation there were 45 sub-sectors of the six main “root causes” which they were asked to rate. The rating was from one to five. In the rating system, one meant that the sub-sector had only a slight impact on the occupation or skill and five meant that the sub-sector had strong impact. If the respondent did not know about an occupation, they were asked to rate it as N/A (Not Applicable) .

Appendix A

Detailed Breakout of Sub-Sector Root Causes

Manufacturing Occupations by Six Main Types of Shortages

CNC MACHINE OPERATOR	INJECTION MOLDING ENGINEERS	MECHANICAL ENGINEERS	MICROBEDDED SYSTEMS SPECIALIST	NANO MANUFACTURING SPECIALIST
Human Resources: Poor attitude, quality of life, the way they are recruited	Human Resources: Lack of career path, Lack of Job creation, Lack of incentive to grow, Quality of life issues	Human Resources: Lack of career path, Lack of incentive to grow, Work Conditions	Human Resources: Lack of career paths, Lack of standardized criteria,	Human Resources: Lack of career paths, Lack of standardized criteria, Lack of job creation
Wages and Benefits: Low Pay, Lack of Healthcare benefits	Wages and Benefits: Low Pay, Lack of Healthcare benefits	Wages and Benefits: Low Pay, Low Compensation	Wages and Benefits: N/A	Wages and Benefits: N/A
Education and Training: Lack of training Increase in technology/lack of skills	Education and Training: Lack of training Increase in technology/lack of skills Transition from physical to knowledge base	Education and Training: Lack of training Increase in technology/lack of skills	Education and Training: Lack of training Increase in technology/lack of skills	Education and Training: Lack of training Increase in technology/lack of skills
Pipeline: Expectations are different from educators and employers, Lack of incentive to grow, Poor attendance	Pipeline: Disconnect between education and employers, Expectations are different from educators and employers, Lack of business savvy	Pipeline: Disconnect between education and employers, Expectations are different from educators and employers, Lack of business savvy	Pipeline: Lack of awareness for the skills required, Disconnect between education and employers, Expectations are different from educators and employers	Pipeline: Lack of awareness for the skills required, Disconnect between education and employers, Expectations are different from educators and employers
Leakage: Once Students leave to go to school they are less likely to return	Leakage: Once Students leave to go to school they are less likely to return	Leakage: migration out of area, Once Students leave to go to school they are less likely to return	Leakage: migration out of area, Once Students leave to go to school they are less likely to return	Leakage: migration out of area, Once Students leave to go to school they are less likely to return
Skills Gap: lack of leadership skills, lack of technical skills, work ethic	Skills Gap: Lack of lack of leadership skills, Lack of management skills, lack of soft skills, inability to properly communicate	Skills Gap: Lack of lack of leadership skills, Lack of management skills, inability to properly communicate	Skills Gap: Inadequate basic skills, Inadequate Math Skills	Skills Gap: Inadequate basic skills, Inadequate Math Skills

Why are there difficulties with employer HR Policies and Practices?

- Because there is a major shift in jobs in manufacturing
 - What is causing the shift?
 - An increase in technology is creating new jobs that have never existed before and require different skill sets which are difficult to set standards for. Because the technology is new, creating career paths which people can follow is difficult to predict.

Why are there difficulties with Education and training?

- Because there is a lack of training
 - What causes the lack of training
 - There is a shift from physical to knowledge based work and more people need remediation training because of an increase in technology.

Why are there difficulties with pipeline and career awareness in manufacturing?

- Because there is a lack of awareness of skills required to enter the career paths.
 - Why is there a lack of awareness of career paths?
 - Because the expectations is different from education and employers.
 - Why are the expectations different?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have standards set by the state that have to be met and might not be able to add the courses that employers want.
 - Because there is a disconnection between education and employers.
 - Why is there a disconnection between education and employers?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have state curriculum that might not match employer's needs.

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because of low wages, compensation and lack of healthcare benefits
 - Why are wages and compensation low?
 - Because of competition from other companies drives down the prices that can be ask for products
 - Because technology has not been introduced and it takes a lot more lower skilled workers to keep up with production demands.

- Why is there a lack of healthcare benefits?
 - Because there is a high cost of healthcare for workers
 - Why are healthcare costs high?
 - Because workers are not as healthy in this region as in other parts of the country
 - Because there is an aging workforce and healthcare costs raise as people get older.

Why are there difficulties with skills gaps?

- Because workers do not have basic skills.
 - Why do they not have basic skills?
 - The region does not put an emphasis on education.
 - Why is there no emphasis on education?
 - Because the generation that lived on the “old days” of manufacturing did not need the Basic Reading, Writing and Arithmetic skills.

Health Care Occupations by Six Main Types of Shortages

GERIATRIC	HEALTH CARE	LPN	OPHTHAMOLOGIST	RN	SPECIALIZED
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SUPERVISOR	ADMINISTRATOR				HEALTH/ DIAGNOSTIC TECHNICIAN
Human Resources: Turnover, lack of standardized criteria	Human Resources: Retirement, turnover	Human Resources: Retirement, turnover, lack of career paths	Human Resources: Turnover, lack of incentive to grow, management practices	Human Resources: The way they are recruited, management practices, work conditions	Human Resources: Lack of career paths, turnover, lack of incentive to grow, slow advancement
Wages And Benefits: aging population, lack of benefits	Wages and Benefits: Low pay, aging population	Wages and Benefits: Aging population	Wages and Benefits: Lack of healthcare benefits	Wages and Benefits: Aging population	Wages and Benefits: Low pay, low compensation
Education and Training: Lack of training, specific training needs not being met	Education and Training: Lack of training, specific training needs not being met, increase in technology, shift to knowledge base	Education and Training: Lack of training	Education and Training: Increase in technology	Education and Training: Increase in technology, shift to knowledge base	Education and Training: Increase in technology, inability to train workers
Pipeline: Lack of awareness for skills required, disconnect between educators and employers	Pipeline: Lack of awareness for skills required, disconnect between educators and employers, expectations different from educators and employers	Pipeline: Lack of awareness for skills required, expectations different from educators and employers	Pipeline: Lack of business savvy to grow	Pipeline: disconnect between educators and employers, expectations different from educators and employers	Pipeline: Lack of awareness for skills required, disconnect between educators/ employers, and expectations differ from educators/ employers
Leakage: Migration out of area, Once Students leave for college they are less likely to return	Leakage: Migration out of area, Once Students leave for college they are less likely to return	Leakage: Once Students leave for college they are less likely to return	Leakage: Migration out of area, Once Students leave for college they are less likely to return	Leakage: Migration out of area, Once Students leave for college they are less likely to return	Leakage: Once Students leave for college they are less likely to return
Skills Gap: lack of soft skills, inability to communicate	Skills Gap: Inability to communicate	Skills Gap: Lack of leadership skills, lack of management skills, work ethics	Skills Gap: Lack of management skills, lack of bilingual skills, lack of soft skills	Skills Gap: Lack of work ethic, lack of soft skills	Skills Gap: lack of basic skills, lack of math skills, lack of computer skills

Why are there difficulties with employer HR Policies and Practices?

- Because there is a difficulty with management practices

- What is causing difficulties in management practices?
 - An increase in retirements and knowledge is being lost.
 - The job causes lots of stress and causes a lot of turnover

Why are there difficulties with Education and training?

- Because there is a lack of training
 - What causes the lack of training
 - There is a shift from physical to knowledge based work and more people need remediation training because of an increase in technology.

Why are there difficulties with pipeline and career awareness in Health Care?

- Because there is a lack of awareness of skills required to enter the career paths.
 - Why is there a lack of awareness of career paths?
 - Because the expectations is different from education and employers.
 - Why are the expectations different?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have standards set by the state that have to be met and might not be able to add the courses that employers want.
 - Because there is a disconnection between education and employers.
 - Why is there a disconnection between education and employers?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have state curriculum that might not match employer's needs.

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because of low wages and demands of an aging population
 - Why are wages low?
 - Because the increase in operating costs for hospitals
 - Because the costs of acquiring new technology has increased.
 - Why is there a different demand from an aging population?
 - Because there is a high cost of healthcare for workers
 - Why are healthcare costs high?
 - Because workers are not as healthy in this region as in other parts of the country

- Because there is an aging workforce and healthcare costs raise as people get older.
- Because an aging workforce has different needs
 - Why are their needs different?
 - Because they would like to have semi-retirement
 - Because the physical demands are more difficult to keep up with as one ages

Why are there difficulties with skills gaps?

- Because workers lack soft skills.
 - Why do they lack soft skills?
 - There is not an emphasis on obtaining management skills.
 - There is no emphasis on gaining the ability to properly communicate
 - Why is there no emphasis on gaining management of communication skills?
 - Because education focuses on gaining only technical skills

Educational Services Occupations by Six Main Types of Shortages

EDUCATION AND TRAINING SPECIALIST	SPECIAL EDUCATION TEACHERS	MATH AND SCIENCE TEACHERS
Human Resources: Lack of Career Paths, Turnover, working conditions	Human Resources: Lack of career paths/levels, Turnover Lack of standardized criteria, Lack of Job creation, Lack of incentive to grow, Quality of life issues,	Human Resources: The way they are recruited, slow advancement
Education and Training: Increase in technology/ lack of skills, Transition to knowledge base, Employers inability to train employees, Training plan/ strategy is lacking	Education and Training: Employers inability to train employees, Training plan/ strategy is lacking	Education and Training: Employers inability to train employees,
Pipeline: Lack of business savvy, Lack of incentive to grow	Pipeline: Lack of awareness for the skills required.	Pipeline: Disconnect between education and employers, Expectations are different from educators and employers
Leakage: Once the students leave to school they are less likely to return	Leakage: Migration out of region, students leave to school they are less likely to return	Leakage: Migration out of region, students leave to school they are less likely to return
Wages: Low Pay, Low Compensation	Wages: Low Pay, Low Compensation	Wages: Low Pay, Low Compensation
Skills Gap: Lack of leadership skills, lack of management skills, inability to properly communicate	Skills Gap: Lack of leadership skills, lack of management skills,	Skills Gap: Lack of technical skills Inability to properly communicate

Why are there difficulties with employer HR Policies and Practices?

- Because there is slow advancement in Education
 - Why is there slow advancement?
 - Because there is a lack of career paths due to the nature of the industry.
 - Because teachers have to wait for retirement
 - Why is the industry like this?
 - Because it is controlled by a Labor Union

Why are there difficulties with Education and training?

- Because there is a lack of training
 - What causes the lack of training

- There is a shift from physical to knowledge based work and more people need remediation training because of an increase in technology.

Why are there difficulties with pipeline and career awareness in Education Services?

- Because there is a lack of business savvy.
 - Why is there a lack of awareness of career paths?
 - Because the expectations is different from education and employers.
 - Why are the expectations different?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Because educators do not have incentive to grow
 - Because it is controlled by a Labor union and there is no incentive to gain more skills.

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because of low wages and compensation
 - Why are wages and compensation low?
 - Because wages are controlled by a contract through a Labor Union
 - Why is there a lack of healthcare benefits?
 - Because there is a high cost of healthcare for workers
 - Why are healthcare costs high?
 - Because workers are not as healthy in this region as in other parts of the country
 - Because there is an aging workforce and healthcare costs raise as people get older.

Why are there difficulties with skills gaps?

- Because workers lack technical skills.
 - Why do they lack technical skills?
 - The region does not put an emphasis on education focusing on technology.
 - Why is there no emphasis on technology?
 - Because the view is technology will replace people.
- Because workers lack communication skills
 - Why do they lack communication skills?
 - Because education is not emphasizing a need to communicate properly

Transportation/ Warehousing Occupations by Six Main Types of Shortages

TRUCK DRIVERS	TRUCK MECHANICS
Human Resources: Lack of Career Paths, Turnover, Lack of Incentive to Grow	Human Resources: Lack of Career Paths, Turnover, lack of incentive to grow
Wages and Benefits: Lack of healthcare benefits, Low compensation	Wages and Benefits: Low pay, Aging population
Pipeline: lack of awareness of skills required, not business savvy	Pipeline: Lack of awareness for the skills required. Disconnect between education and employers
Skills Gap: Lack of computer skills, work ethic	Skills Gap: lack of computer skills, work ethic
Leakage: N/A	Leakage: N/A
Education and Training: Lack of training ,Increase in technology/lack of skills	Education and Training: Employers inability to train employees, Training plan/ strategy is lacking or non-existent

Why are there difficulties with employer HR Policies and Practices?

- Because there is a lack of incentive to grow
 - What is causing the lack of incentive to grow?
 - Because of high turnover.
 - What causes high turnover
 - Long hours on the road
 - Because of Lack of career paths
 - What causes the lack of career paths?
 - The industry runs on mostly small companies that does not have the ability to have career paths

Why are there difficulties with Education and training?

- Because there is a lack of training
 - What causes the lack of training
 - There is an increase in technology more people need remediation training to keep up with the changes.

Why are there difficulties with pipeline and career awareness in Transportation/ Warehousing?

- Because there is a lack of awareness of skills required to enter the career paths.
 - Why is there a lack of awareness of career paths?
 - Because there is a need to be business savvy
 - Why is there a need to business savvy?

- Because most companies need people need to have people that can come up with ways to gain business and save money.
- Because there is an increase in operating costs.

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because of low compensation and lack of healthcare benefits
 - Why is compensation low?
 - Because of competition from other companies drives down the prices that can be ask for their services
 - Because of and increase in operating costs.
 - Why is there a lack of healthcare benefits?
 - Because there is a high cost of healthcare for workers
 - Why are healthcare costs high?
 - Because workers are not as healthy in this region as in other parts of the country
 - Because there is an aging workforce and healthcare costs raise as people get older.

Why are there difficulties with skills gaps?

- Because workers do not have management skills or leadership skills.
 - Why do they not have management skills?
 - The region does not put an emphasis on management or leadership skills.
- Because workers do not have computer skills.
 - Why do workers not have computer skills?
 - Because there was not an emphasis on training lower-skilled workers on new technology

Administrative Support Occupations by Six Main Types of Shortages

EMPLOYMENT SPECIALIST	GRANT SPECIALIST
Skills Gap: Lack of technical skills/computer skills	Skills Gap: Lack of technical skills, inability to communicate
Human Resources: Quality of life, Treatment by supervisors, Management practices	Human Resources: Lack of Career Paths/ levels, lack of incentive to grow
Education and Training: Increase in technology/lack of skills	Education and Training: Employers unwillingness/inability to train employees
Pipeline: Disconnect between Education and employers	Pipeline: Disconnect between Education and employers, lack of awareness for the skills required
Leakage: Migration out of region	Leakage: Migration out of region
Wages and Benefits: Low pay	Wages and Benefits: Low Compensation

Why are there difficulties with employer HR Policies and Practices?

- Because there is quality of life issues
 - What is causing quality of life issues?
 - Problems with management practices
 - What is causing Management practice problems?
 - Managers are not trained on how to deal with a diversified workforce
- Because there is a lack of incentive to grow.
 - What is causing the lack of incentive to grow?
 - Most of the careers are so specific that it is difficult to find career paths.

Why are there difficulties with Education and training?

- Because there is a lack of training
 - What causes the lack of training

- There is a shift from physical to knowledge based work and more people need remediation training because of an increase in technology.
- Because there is an increase in technology and people are not familiar with the new demands of being familiar with new technology.

Why are there difficulties with pipeline and career awareness in Administrative Support?

- Because there is a lack of awareness of skills required to enter the career paths.
 - Why is there a lack of awareness of career paths?
 - Because the expectations is different from education and employers.
 - Why are the expectations different?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have standards set by the state that have to be met and might not be able to add the courses that employers want.
 - Because there is a disconnection between education and employers.
 - Why is there a disconnection between education and employers?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have state curriculum that might not match employer's needs.

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because of low wages, compensation
 - Why are wages and compensation low?
 - Because of competition from other companies drives down the prices that can be ask for products
 - Because government jobs do not pay as much as companies do.

Why are there difficulties with skills gaps?

- Because workers lack technical skills.
 - Why do they lack technical skills?
 - The region does not put an emphasis on education focusing on technology.
 - Why is there no emphasis on technology?

- Because the view is technology will replace people.
- Because workers lack communication skills
 - Why do they lack communication skills?
 - Because education is not emphasizing a need to communicate properly

Construction Occupations by Six Main Types of Shortages

CARPENTERS	ELECTRICIANS
Skills Gap: lack of management skills, work ethic, lack of technical skills	Skills Gap: lack of leadership, lack of management, lack of soft skills
Human Resources: Retirement, translation for immigrant workers, lack of job creation	Human Resources: Work Conditions
Education and Training: Transition from a physical to a knowledge based economy	Education and Training: Transition from a physical to a knowledge based economy
Pipeline: Lack of awareness for skills required, lack of attendance	Pipeline: lack of awareness for skill required
Leakage: migration out of area, after training they are less likely to return	Leakage: migration out of area, after training they are less likely to return
Wages and Benefits: aging population	Wages and Benefits: Low pay, aging population, low compensation

Why are there difficulties with employer HR Policies and Practices?

- Because there is a major shift in jobs
 - What is causing the shift?
 - Retirements
 - Lack of Job Creation in the industry
 - Why is there no new job creations
 - There is a Labor Union that controls the formal training
 - Technology has not entered this field
 - Hazardous working conditions
 - Why are working conditions hazardous
 - It is inherent with the career paths
 - Technology has not been implemented to make it safer

Why are there difficulties with pipeline and career awareness?

- Because there is a lack of awareness of skills required to enter the career paths.
 - Why is there a lack of awareness of career paths?

- Because the expectations is different from education and employers.
 - Why are the expectations different?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have standards set by the state that have to be met and might not be able to add the courses that employers want.
- Because there is a poor attendance by workers.
 - Why is there poor attendance?
 - Employees do not have the motivation to regularly attend work
 - Why are employees not motivated to attend work?
 - Financial Circumstances

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because an aging population
 - Why is the aging population affecting this industry so much?
 - Because of competition from other companies drives down the prices that can be ask for their services
 - Because technology has not been introduced and it takes a lot more lower skilled workers to keep up with production demands.
 - Because the younger generation does not have the skills necessary to work in this industry.
 - Why is there no value on skilled labor
 - Because education is pushing for everyone to go to college.

Why are there difficulties with skills gaps?

- Because workers do not management skills.
 - Why do they not have management skills?
 - The region does not put an emphasis on management skills for skilled laborers.
 - Why is there no emphasis on higher skills?
 - Because the generation that lived on the “old days” of manufacturing did not need the higher skills.
- Because workers do not have bilingual skills
 - Why do they not have bilingual skills

- Some of them are immigrant workers who do not understand English
 - Because English speaking laborers do not understand the need to communicate with immigrant workers
- Because workers do not have good work ethics
 - Why do workers not have good work ethics?
 - Because education does not tell children about work expectations
 - Because employers do not enforce work expectations

Information Technology Occupations by Six Main Types of Shortages

COMPUTER AIDED DRAFTER	SOFTWARE ENGINEERS	COMPUTER REPAIR	WEBMASTERS	COMPUTER SECURITY
Skills Gap: Lack of Soft Skills, Lack of technical skills	Skills Gap: Lack of technical skills, Inability to properly communicate	Skills Gap: Lack of lack of leadership skills, Lack of management skills	Skills Gap: Lack of lack of leadership skills, Lack of management skills, bilingual skills, inability to properly communicate	Skills Gap: Lack of lack of leadership skills, Lack of management skills, inability to properly communicate
Human Resources: poor attitude behavior, management practices	Human Resources: Lack of career paths/levels, Poor attitude behaviors, drugs/alcohol	Human Resources: Lack of career path, slow advancement	Human Resources: Poor attitude behaviors, Turnover, Lack of standardized criteria	Human Resources: Lack of career paths/levels, Poor attitude behaviors, management practices
Education and Training: Lack of training, Increase in technology/lack of skills	Education and Training: Lack of training , Increase in technology/lack of skills, inability to train	Education and Training: Lack of training, Increase in technology/lack of skills	Education and Training: Employers inability to train, Training plan/ strategy is lacking or non-existent	Education and Training: Lack of training, Increase in technology/lack of skills, Transition from physical to knowledge base
Pipeline: Lack of incentive to grow, Poor employee performance	Pipeline: Lack of awareness for the skills required, Disconnect between education and employers	Pipeline: Lack of awareness for the skills required, Disconnect between education and employers, Expectations are different from educators and employers	Pipeline: Lack of awareness for the skills required, Disconnect between education and employers, Expectations are different from educators and employers	Pipeline: Lack of awareness for the skills required, Disconnect between education and employers, Expectations are different from educators and employers
Leakage: N/A	Leakage: Once Students leave to go to school they are less likely to return	Leakage: Leaving to/ migration out of area, Once Students leave to go to school they are less likely to return	Leakage: Leaving to/ migration out of area, Once Students leave to go to school they are less likely to return	Leakage: Leaving to/ migration out of area, Once Students leave to go to school they are less likely to return
Wages and Benefits: Aging Population	Wages and Benefits: N/A	Wages and Benefits: Low pay, Lack of healthcare benefits, Low compensation	Wages and Benefits: Lack of healthcare benefits, Low compensation	Wages and Benefits: Low pay

GIS TECHNICIANS	INFORMATION ARCHITECTS	FIBER OPTICS TECHNICIANS
Skills Gap: Inability to properly communicate	Skills Gap: Lack of computer skills, lack of technical skills	Skills Gap: Lack of lack of leadership skills, Lack of management skills
Human Resources: Lack of career paths, lack of standardized criteria, Employment practices, Management Practices, treatment by supervisors	Human Resources: Lack of career paths/levels, Poor attitude behaviors, Way that they recruit people, Administration of policies	Human Resources: Lack of career paths, lack of incentive to grow
Education and Training: Increase in technology/lack of skills, Transition from physical to knowledge base, Training plan/ strategy is lacking or non-existent	Education and Training: Increase in technology/lack of skills, Transition from physical to knowledge base	Education and Training: Lack of training, Increase in technology/lack of skills, Transition from physical to knowledge base
Pipeline: Lack of awareness for the skills required, Disconnect between education and employers, Expectations are different from educators and employers	Pipeline: Lack of awareness of skills required, poor employee performance	Pipeline: Lack of awareness for the skills required, Disconnect between education and employers, Expectations are different from educators and employers
Leakage: Leaving to/ migration out of area, Once Students leave to go to school they are less likely to return	Leakage: Leaving to/ migration out of area, Once Students leave to go to school they are less likely to return	Leakage: Leaving to/ migration out of area, Once Students leave to go to school they are less likely to return
Wages and Benefits: Low pay, Lack of healthcare benefits, Low compensation	Wages and Benefits: Low pay, Lack of healthcare benefits, Low compensation	Wages and Benefits: Low Pay

Why are there difficulties with employer HR Policies and Practices?

- Because there are poor attitudes/ behaviors
 - What causes poor attitudes?
 - Slow Advancement
 - What causes slow advancement
 - Lack of career patch
 - What is causing the lack of career paths?
 - An increase in technology is creating new jobs that have never existed before and require different skill sets which are difficult to create career paths which people can follow is difficult to predict.

Why are there difficulties with Education and training?

- Because there is a lack of training
 - What causes the lack of training

- There is a shift from physical to knowledge based work and more people need remediation training because of an increase in technology.
- The schools cannot obtain the funding to provide the most up-to-date training
- There is such a rapid change in technology it is difficult to know what training is needed
- The change in technology requires a constant need to change with the technology

Why are there difficulties with pipeline and career awareness in Information Technology?

- Because there is a lack of awareness of skills required to enter the career paths.
 - Why is there a lack of awareness of career paths?
 - Because the expectations is different from education and employers.
 - Why are the expectations different?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have standards set by the state that have to be met and might not be able to add the courses that employers want.
 - Because there is a disconnection between education and employers.
 - Why is there a disconnection between education and employers?
 - Educators and employers do not communicate as effectively as needed to prepare the workforce.
 - Educators have state curriculum that might not match employer's needs.

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because of low wages and lack of healthcare benefits
 - Why are wages and compensation low?
 - Because of competition from other companies drives down the prices that can be ask for products
 - Because technology has not been introduced and it takes a lot more lower skilled workers to keep up with production demands.
 - Why is there a lack of healthcare benefits?
 - Because there is a high cost of healthcare for workers
 - Why are healthcare costs high?

- Because workers are not as healthy in this region as in other parts of the country
- Because there is an aging workforce and healthcare costs raise as people get older.

Why are there difficulties with skills gaps?

- Because workers lack technical skills.
 - Why do they lack technical skills?
 - Cannot keep up with the education needs of advanced technology.
 - Why can education not keep up with the demand?
 - Because the funding from the state does not allow for rapid change.
 - Because Education cannot change as rapidly as new technical jobs appear.
- Because workers do not know how to properly communicate
 - Why do they not know how to properly communicate?
 - Because education focuses on technical skills and not verbal skills
- Because workers lack leadership skills
 - Why do workers lack leadership skills
 - Because education focuses only on technical skills.

First Line Supervisor: Six Main Types of Shortages

All industries reported one shortage that was the same: First Line Supervisor. Though the responsibilities for each industry are unique, through the survey, it was found that the Root Causes were the common binding across each industry. Therefore, First Line Supervisor will be presented cross-cutting through each industry.

FIRST LINE SUPERVISOR
Skills Gap: Lack of leadership skills, Lack of management skills, work ethic
Human Resources: Lack of Career paths, Turnover, Slow Advancement
Education and Training: Lack of training, Increase in technology/lack of skills, Transition from physical to knowledge base
Pipeline: lack of awareness of skills required, Lack of incentive to grow, poor attendance
Leakage: Leaving to/ migration out of area, Once Students leave to go to school they are less likely to return
Wages and Benefits: Low pay, lack of healthcare benefits, Low compensation

Why are there difficulties with employer HR Policies and Practices?

- Because there lack of leadership and management skills.
 - What is causing the lack of leadership and management skills?
 - Education is not teaching these kinds of skills to the entry-level workforce and when they get promoted, they don't understand the demands of their new position.
- Because there is a lack of work ethics
 - Why is there a lack of work ethics?
 - Because education does not educate students about proper workplace ethics.

Why are there difficulties with Education and training?

- Because there is a lack of career paths
 - What causes the lack of career paths
 - There is slow advancement in most companies because there is a policy to promote from within.
 - There is such a high turnover at the entry-level that workers don't get the opportunity to be promoted

Why are there difficulties with pipeline and career awareness in First Line Supervisor?

- Because there is a lack of awareness of skills required to enter the career paths.

- Why is there a lack of awareness of career paths?
 - Because there is poor attendance by the employees and they don't find out about career paths.
 - Why is there poor attendance
 - High turnover within companies discourages workers and they have no motivation to grow.

Why are there difficulties with leakage?

- Because there is migration out of the area.
 - Why is there migration out of the area?
 - Because qualified workers do not see the opportunities in the area or they find better opportunities elsewhere.

Why are there difficulties with wages and benefits?

- Because of low wages, compensation and lack of healthcare benefits
 - Why are wages and compensation low?
 - Because of competition from other companies drives down the prices that can be ask for products
 - Because technology has not been introduced and it takes a lot more lower skilled workers to keep up with production demands.
 - Why is there a lack of healthcare benefits?
 - Because there is a high cost of healthcare for workers
 - Why are healthcare costs high?
 - Because workers are not as healthy in this region as in other parts of the country
 - Because there is an aging workforce and healthcare costs raise as people get older.

Why are there difficulties with skills gaps?

- Because workers do not management or leadership skills.
 - Why do they not have management or leadership skills?
 - The region does not put an emphasis on management skills for skilled laborers.
 - Why is there no emphasis on higher skills?
 - Because the generation that lived on the “old days” of manufacturing did not need the higher skills for manual labor.
- Because workers do not have good work ethics
 - Why do workers not have good work ethics?
 - Because education does not tell children about work expectations
 - Because employers do not enforce work expectations

Appendix B:

State Wide Wages by Industry

Manufacturing			Health Care and Social Services	Construction		Educational Services	
Region	Average Wages	Region	Average Wages	Region	Average Wages	Region	Average Wages
5	\$58,594.00	5	\$38,530.00	1	\$43,112.00	4	\$36,799.00
1	\$55,604.00	National	\$37,130.79	5	\$42,375.00	National	\$35,949.36
4	\$53,098.00	2	\$35,194.00	National	\$40,445.55	5	\$35,197.00
National	\$47,904.92	1	\$35,125.00	Indiana	\$39,343.28	8	\$33,230.00
Indiana	\$47,641.23	Indiana	\$34,953.93	2	\$39,328.00	Indiana	\$33,106.65
11	\$46,033.00	11	\$34,002.00	11	\$37,379.00	7	\$32,692.00
9	\$43,996.00	3	\$33,519.00	3	\$36,706.00	2	\$32,572.00
6	\$43,242.00	10	\$32,359.00	7	\$33,297.00	6	\$32,457.00
3	\$42,841.00	4	\$32,051.00	8	\$32,739.00	9	\$30,985.00
2	\$42,035.00	9	\$31,747.00	10	\$32,341.00	11	\$30,911.00
7	\$41,369.00	6	\$31,384.00	9	\$32,203.00	10	\$30,910.00
8	\$38,487.00	8	\$31,121.00	4	\$32,197.00	3	\$30,811.00
10	\$36,896.00	7	\$30,029.00	6	\$30,979.00	1	\$30,616.00

Transportation/ Warehousing			Administrative Support		Information Technology		
Region	Average Wages		Region	Average Wages	Region	Average Wages	
2	\$46,238.00		National	\$27,309.06	National	\$59,242.70	
National	\$41,275.51		5	\$25,098.00	5	\$48,282.00	
1	\$37,871.00		9	\$22,165.00	3	\$43,343.00	
5	\$37,775.00		1	\$21,967.00	2	\$36,089.00	
Indiana	\$36,618.68		Indiana	\$8,776.28	11	\$34,654.00	
3	\$36,284.00		3	\$20,703.00	Indiana	\$20,146.43	
10	\$35,750.00		10	\$20,424.00	1	\$32,722.00	
4	\$35,241.00		7	\$20,177.00	7	\$31,429.00	
11	\$34,388.00		8	\$20,090.00	8	\$30,216.00	
6	\$34,323.00		11	\$19,977.00	4	\$28,561.00	
7	\$33,363.00		6	\$19,947.00	9	\$27,874.00	
9	\$32,591.00		2	\$19,342.00	10	\$26,985.00	
8	\$30,881.00		4	\$18,890.00	6	\$26,285.00	

Appendix C

Employer Use and Percent of Recruiting Tools

	Recruitment Sources Used for Occupational Shortages					(%)					
	Newspaper	Within	Word of Mouth	Walk-In	One Stop	School	Recruiter	Internet	Other	None	Don't Know
Occupation											
Registered Nurse	96	67	93	54	16	50	27	54	1	0	3
LPN	98	77	88	81	34	57	31	48	3	0	1
Supervisor	66	71	80	57	48	36	6	29	18	3	0
Truck Driver	91	50	96	91	30	1	42	36	15	0	0
Construction Worker	34	38	97	66	6	27	0	29	0	29	1
Truck Mechanic	91	50	96	91	30	1	42	36	15	0	0
Special Ed Teacher	67	67	100	67	17	100	0	83	0	0	0
Science/Math	71	100	100	86	0	100	0	100	0	0	0
Teacher											
Electrician	57	21	71	43	14	0	7	21	7	0	7
Carpenter	20	44	78	65	2	15	2	2	15	0	0
Machinist	65	65	82	52	30	17	3	9	0	2	3
Training Specialist	62	77	62	38	38	46	38	62	0	8	0
Software Engineer	85	95	100	5	0	80	70	95	0	0	0
Source: Job Vacancy Survey- Workforce Associates											
30% of all Businesses in Indiana											

Appendix D

Survey Questionnaire

Industry:

Please rank each of the following on the degree that it impacts occupational/ skill shortages in your industry.

Note: 1= Slight Impact 5= Strong Impact N/A= Not applicable to your company or experience.

FIRST LINE SUPERVISOR

	1	2	3	4	5	N/A
Human Resources						
Lack of career paths/levels.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor attitude behaviors.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turnover.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of standardized criteria.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of Job creation.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of incentive to grow.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of life issues.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drugs/ alcohol.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Retirements.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Translation for immigrant workers.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Way that they recruit people.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administration of policies.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employment practices.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management Practices.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slow advancement.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treatment by supervision.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working conditions.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education and Training						
Lack of training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase in technology... lack of skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transition from physical to knowledge base.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specific training needs are not being met.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employers unwillingness/ inability to train employees.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training plan/ strategy is lacking or non-existent.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wages and Benefits						
Low Pay.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aging Population.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of Health Care Benefits.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low Compensation.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pipeline						
Lack of awareness for the skills required.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disconnect between education and employers.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of business saviness.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of incentive to grow.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor Employee Performance.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor Attendance.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of Computer Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of Leadership Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of Management Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inadequate Math Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work Ethics.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bilingual Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of Soft Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of Technical Skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inability to Properly Communicate.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brain Drain						
People are Migrating out of Area.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Once Student leaves, it is less likely they will return.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ADD other Causes and Comments

Appendix E

Quantitative Analysis of Industry Root Causes

	HR	Education and Training	Wages and Benefits	Pipeline	Skills	Brain Drain
Industry						
Administrative	3.06	3.52	3.40	1.53	3.22	3.50
Construction	2.12	1.50	1.75	1.21	1.30	1.50
Education	3.18	3.23	3.83	2.98	1.88	3.07
Healthcare	2.05	2.65	2.79	2.67	2.50	2.18
IT	2.36	3.46	2.39	2.93	3.04	2.99
Manufacturing	1.95	2.38	1.97	2.85	2.37	1.96
Transportation	3.35	4.00	4.38	3.36	1.55	1.00
First Line Supervisor	2.43	2.32	2.72	2.51	2.63	2.15
Over All Industries	2.56	2.88	2.90	2.50	2.31	2.29